Selected Abstracts from the August Issue of the European Journal of Vascular and Endovascular Surgery

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General Anaesthesia is Associated with Adverse Cardiac Outcome after Endovascular Aneurysm Repair

Bakker E.J., van de Luijtgaarden K.M., van Lier F., Valentijn T.M., Hoeks S.E., Klimek M., Verhagen H.J.M., Stolker R.J. Eur J Vasc Endovasc Surg 2012;44:in press.

Objectives: Endovascular aneurysm repair (EVAR) is associated with reduced cardiac stress compared with open repair and is an attractive therapeutic option, especially in cardiac fragile patients. General and locoregional anaesthesia differ regarding the stress response evoked by surgery. The aim of the study is to compare the incidence of cardiac events after EVAR under general or locoregional anaesthesia.

Methods: A total of 302 consecutive patients undergoing infrarenal EVAR between 2002 and 2011 were analysed in this retrospective cohort study. Selection of anaesthesia type was at the discretion of the treating physicians. Medical history, medication use, anaesthesia technique and follow-up were obtained. The study end point was 30-day cardiac complications, including cardiac death, non-fatal myocardial infarction, heart failure, ventricular arrhythmia and troponin T release. Multivariable analysis, adjusted for the propensity of receiving a locoregional technique and cardiac risk factors according to the Revised Cardiac Risk Index, was used to assess the association between cardiac events and anaesthesia type.

Results: A total of 173 patients underwent general anaesthesia and 129 locoregional anaesthesia. Obesity, aspirin use and therapeutic anticoagulation were more common in patients receiving general anaesthesia. Cardiac events were observed in 13.3% of patients receiving general anaesthesia and in 4.7% of patients receiving locoregional anaesthesia ($P = 0.02$), or 6.4% versus .8% ($P = 0.02$) when asymptomatic troponin release is excluded from the end point. In the general anaesthesia group, two cardiac deaths, six non-fatal myocardial infarctions, two cases of non-fatal heart failure, one non-fatal cardiac arrest and 12 cases of troponin T release were observed, compared with one myocardial infarction and five cases of troponin T release in the locoregional anaesthesia group. In multivariable analysis, general anaesthesia was associated with adverse cardiac events (odds ratio (OR) 3.8; 95%-confidence interval (CI) 1.1–12.9). Non-cardiac complications occurred in 11.6% of patients in both groups ($P = 1.00$).

Conclusion: General anaesthesia was associated with an increased risk of cardiac events in EVAR, compared with locoregional anaesthesia.

Use of Colour Duplex Ultrasound as a First Line Surveillance Tool Following EVAR is Associated with a Reduction in Cost Without Compromising Accuracy

Gray C., Goodman P., Herron C.C., Lawler L.P., O'Malley M.K., O'Donohoe M.K., McDonnell C.O. Eur J Vasc Endovasc Surg 2012; 44:in press.

Introduction: CT scanning remains the postoperative surveillance imaging modality of choice following EVAR. Concerns regarding cost, exposure to ionising radiation and intravenous contrast have led to a search for a less expensive, equally efficacious and safer method of monitoring EVAR patients after endograft deployment. This study evaluated the cost saving obtained if CDUS was employed as a first line surveillance tool following EVAR, as well as comparing the two entities in terms of efficacy.

Patients & methods: Postoperative surveillance CTs and CDUS scans in the 145 patients who have undergone EVAR from 1st June 2003 to 1st July 2010 were compared for the detection of endoleak and determination of residual sac size.

Results: Adopting a protocol where CDUS was employed as the first line surveillance tool following EVAR would result in a reduction in the number of postoperative CTs required in 2010 from 235 to 36. Based on 2010 costings, this would equate to an estimated reduction in expenditure from €117,500 to €34,915 a saving of €82,585. CDUS had a sensitivity of 100% and a specificity of 85% in the detection of endoleaks compared to CT. The positive predictive value was 28% and negative predictive value 100%. The Pearson Coefficient correlation of 0.96 indicates a large degree of correlation between CDUS and CT when measuring residual aneurysm size following EVAR.

Conclusion: CDUS can replace CT as the first line surveillance tool following EVAR. This is associated with a significant reduction in the cost of surveillance without any loss of imaging accuracy.

Role of Thrombophilia in Premature Peripheral Arterial Obstructive Disease – Experience of a Vascular Centre in China

Ni L., Liu C.-W., Ricco J.-B., Dick F., Liu B., Ye W. Eur J Vasc Endovasc Surg 2012;44:in press.

Objective: To evaluate aetiology profile and role of thrombophilia in patients with premature peripheral arterial obstructive disease (PAOD) in China.

Methods: Between January 2000 and January 2010, among 368 patients presenting with PAOD, but not Buerger's disease, at an age of less than 45 years, 150 patients have been screened for thrombophilia and the data analysed retrospectively. Aetiologies of thrombophilia which involved in premature PAOD were assessed and surgical outcomes were stratified for presence of thrombophilia.

Results: In 57 of 150 patients (38%), laboratory assay results suggested thrombophilia, and the rest of them presented with other aetiology (62%). A total of 108 patients, including 38 patients with thrombophilia (35%), needed some type of revascularisation. At 30 days, recurrent thrombosis (29% vs. 9%; $p = 0.005$) and major amputations (11% vs. 1%; $p = 0.032$) were more common in patients with thrombophilia. At 1 year, primary patency (56% vs. 75%, $p = 0.043$), secondary patency (68% vs. 92%, $p = 0.036$) and limb salvage (74% vs. 96%, $p = 0.038$) were significantly lower in patients with thrombophilia.

Conclusion: Thrombophilia is frequently diagnosed among premature PAOD in China and adversely affects outcome after revascularisation. Clinicians should be aware of its high prevalence and aim at screening and sustained thrombophilia treatment.

International Variations in Infrainguinal Bypass Surgery – A VASCUNET Report

Lees T., Troëng T., Thomson I.A., Menyhei G., Simo G., Beiles B., Jensen L.P., Palombo D., Venermo M., Mitchell D., Halbakken E., Wigger P., Heller G., Björck M. Eur J Vasc Endovasc Surg 2012;44:in press.

Objectives: To compare practice in lower limb bypass surgery in nine countries.

Design: A prospective study amalgamating and analysing data from national and regional vascular registries.

Methods: A table of data fields and definitions was agreed by all member countries of the Vascunet Collaboration. Data from January 2005 to December 2009 was submitted to a central database.

Results: 32,084 cases of infrainguinal bypass (IIB) in nine countries were analysed. Procedures per 100,000 population varied between 2.3 in the UK and 24.6 in Finland. The proportion of women varied from 25% to 43.5%. The median age for all countries was 70 for men and 76 for women. Hungary treated the youngest patients. IIB was performed for claudication for between 15.7% and 40.8% of all procedures. Vein grafts were used in patients operated on for claudication (52.9%), for rest pain (66.7%) and tissue loss (74.1%). Italy had the highest use of synthetic grafts. Among claudicants 45% of bypasses were performed to the below knee popliteal artery or more distally. Graft patency at 30 days varied between 86% and 99%.

Conclusions: Significant variations in practice between countries were demonstrated. These results should be interpreted alongside the known limitations of such registry data with respect to quality and completeness of the data. Variation in data completeness and data validation between countries needs to be improved for useful international comparison of outcomes.

A Systematic Review and Meta-analysis of Randomised Controlled Trials Comparing Endovenous Ablation and Surgical Intervention in Patients with Varicose Vein

Siribumrungwong B., Noorit P., Wilasrusmee C., Attia J., Thakkinstian A. Eur J Vasc Endovasc Surg 2012;44:in press.

Objectives and design: A systematic review and meta-analysis was conducted to compare clinical outcomes between endovenous laser ablation (EVLA), radiofrequency ablation (RFA), ultrasound-guided foam sclerotherapy (UGFS) and surgery.

Methods: We searched MEDLINE and Scopus from 2000 to August 2011 to identify randomised controlled trials (RCTs) comparing EVLA, RFA, UGFS, and surgery or combinations of these for treatment of varicoses. Differences in clinical outcomes were expressed as pooled risk ratio and